

Abstract

Sub B1

The present invention provides novel isolated nucleic acids comprising an avian nucleic acid sequence encoding a lysozyme gene expression control region. The isolated nucleic acid of the present invention is useful for reducing the chromosomal positional effect of a transgene operably linked to the lysozyme gene expression control region and transfected into a recipient cell and allows expression of an operably linked heterologous nucleic acid insert in a transfected avian cell such as, for example, an oviduct cell. The isolated avian lysozyme of the present invention may be operably linked with a selected nucleic acid insert, wherein the nucleic acid insert encodes a polypeptide desired to be expressed in a transfected cell. The nucleic acid insert may be placed in frame with a signal peptide sequence, whereby translation initiation may start with the signal peptide and continue through the nucleic acid insert, thereby producing an expressed polypeptide having the desired amino acid sequence. The recombinant DNA of the present invention may further comprise a polyadenylation signal sequence. The sequence of the expressed nucleic acid insert is optimized for chicken codon usage. This may be determined from the codon usage of at least one, and preferably more than one, protein expressed in a chicken cell. The present invention further includes expression vectors comprising an isolated avian lysozyme gene expression control region of the present invention, and transfected cells and transgenic avians comprising the expression vectors.